

REMARKS

After entry of this Amendment, claims 1, 2 and 4-22 are pending in the application. Claim 1 has been amended to more particularly point out and distinctly claim the subject matter which Applicant regards as the invention. Reconsideration of the application is respectfully requested in view of the amendments defined herein and the following remarks.

In the Office Action dated July 27, 2005, claims 1, 4-7, 10 and 13-22 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Nayar et al 5,707,483 in view of Couillard et al 6,454,890 and in further view of McNichols et al 6,547,903. The Examiner recognizes that Nayar does not have an anvil and a transformer and converter located on each axial end of the horn, but suggests that it would be obvious to add these elements from Couillard and McNichols. The Examiner also recognizes that Nayar discloses a horn having a length equal to a wavelength having a total length of up to 12.4 cm. However, Nayar does not disclose a welding surface of a horn length that is greater than a lambda-half wave. Nayar discloses a horn having a length of a lambda-half wave. See col. 2, ll. 38-41. The length of the horn can be increased by stacking multiple horns in parallel along their length. See col. 6, ll. 60-63. However, gaps are formed between each stacked horn preventing the formation of a single continuous roller surface having a length greater than a lambda-half wave. See Figs. 10, 13, and 14.

Couillard discloses a bonding apparatus that uses a rotating horn connected to an amplifier and wave guide at an input end for sending ultrasonic vibrations from a drive mechanism or exciter to the horn. See col. 11, ll. 62-65 and col. 12, 39-43. Couillard discloses that "ultrasonically induced movements of the opposite ends of the horn relative to each other may be out of phase," and therefore teaches away from an apparatus having a horn that is induced at both opposing ends. See col. 12, ll. 30-32. Couillard also discloses the use of multiple rotary horns and an equal number of anvils, each having the same width as the corresponding horn. See col. 9, ll. 44-48. As shown in Fig. 2B, the web is segmented by the multiple horns.

Each horn represents the width of the corresponding segment. The horns extend along the length of the web for bonding. The apparatus disclosed in Couillard teaches that the use of "multiple-single use anvils are desirable over conventional methods of full-width bonding using a full-width anvil," thereby teaching away from Applicant's invention. See col. 9, ll. 49-53.

The structure in McNichols discloses a rotatable horn structure having an isolation member with high rigidity. The horn includes an exciter attached to both ends for providing ultrasonic power to the horn, but McNichols does not disclose the exciters each having an energy supply. The ultrasonic power is transferred to the horn through wave-guides, boosters, and transmission components to the horn. See col. 8, ll. 6-9. As shown in Figs. 9, 12, 13, and 13A, the horn is rotated by a drive motor 92 connected at one end of the horn apparatus. Applicant respectfully submits that the combination of Nayer, Couillard, and McNichols does not render obvious a rotating roller having a length greater than a lambda-half wave that is driven on both axial ends by an amplitude transformer and at least one ultrasonic converter with an energy supply.

Claims 2, 8-9 and 11-12 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Nayar et al 5,707,483 in view of Mlinar et al 5,976,316 and further in view of McNichols et al 6,547,903. Mlinar is relevant only for its disclosure of the implementation of radial bearings in a mounting system for an ultrasonic element. The combination of Nayar, Mlinar, and McNichols does not disclose a rotating roller of a length greater than a lambda-half wave that is driven on both axial ends by a configuration including an amplitude transformer, at least one ultrasonic converter, and an energy supply attached to the converters on each horn end. Reconsideration of this rejection under §103 is requested.

For the reasons set forth above, it is respectfully submitted that Applicant's invention as set forth in claims 1, 2 and 4-22 is not rendered obvious by the cited references. It is respectfully submitted that claims 1, 2 and 4-22 are in condition for allowance; a notice of which is respectfully requested.

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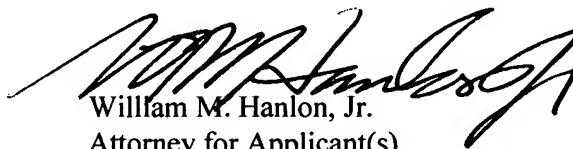
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It is respectfully submitted that this after final amendment: (1) does not raise new issues that would require further consideration and/or search, since the proposed amendments incorporate previously recited limitations from dependent claims into the independent claims and these limitations have been previously considered and searched by the Examiner; (2) does not raise the issue of new matter, since the proposed amendments have support in the originally filed application including the specification, claims and drawings; (3) does places the application in better form for appeal by materially reducing and/or simplifying the issues for appeal; and/or (4) does not present additional claims without canceling a corresponding number of finally rejected claims. The after final amendment was necessitated by the Examiner's reliance on the newly cited reference McNichols, which Applicant has not had an opportunity to address in combination with the cited references of Nayer and Couillard.

Therefore, this Amendment meets the requirements of 37 C.F.R. § 1.116 for entry which action is respectfully requested.

Respectfully submitted,

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